

CLAIMS

1. A communication device for use within one or more communication systems, the communication device comprising:

a main housing;

5 a movable flip housing moveably coupled to the main housing through a hinge assembly;

the hinge assembly coupled between the main housing and the movable flip housing, the hinge assembly comprising:

a hinge shaft,

10 a first knuckle coupled to one side of the hinge shaft, and

a second knuckle coupled to an opposing side of the hinge shaft; and

an antenna system for transmitting and receiving communication signals

within the one or more communication systems, the antenna system comprising:

the first knuckle coupled to a positive side of a signal source.

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2. A communication device as recited in claim 1, wherein the first knuckle is coupled through a first impedance match to the positive side of the signal source.

3. A communication device as recited in claim 1, further comprising:

20 a printed circuit board, wherein the signal source is coupled to the printed circuit board, and further wherein the first knuckle is coupled to the positive side of the signal source through a conductive spring clip coupled to the printed circuit board.

4. A communication device as recited in claim 1, wherein the antenna system further comprises:

the second knuckle coupled to a negative side of the signal source.

5 5. A communication device as recited in claim 4, wherein the first knuckle is used for communication within a first communication system, and wherein the second knuckle is used for communication within a second communication system.

6. A communication device as recited in claim 4, wherein the second knuckle is
10 coupled through a second impedance match to the negative side of the signal source.

7. A communication device as recited in claim 4 further comprising:
a printed circuit board having a printed circuit board ground, wherein the negative side of the signal source is coupled to the printed circuit board ground and
15 further wherein the second knuckle is coupled to the printed circuit board ground.

8. A communication device as recited in claim 7 wherein the second knuckle is coupled to the printed circuit board ground through a conductive spring clip.

20 9. A communication device as recited in claim 1, wherein the antenna system further comprises:

a main antenna coupled to the positive side of the signal source.

10. A communication device as recited in claim 9, wherein the main antenna is used for communication within a first communication system, and wherein the first knuckle is used for communication within a second communication system.

5 11. A communication device as recited in claim 9, wherein the main antenna is coupled through a main antenna impedance match to the positive side of the signal source.

12. A communication device as recited in claim 9, wherein the antenna system
10 further comprises an electronic switch, and further wherein the main antenna and the first knuckle are coupled to the positive side of the signal source through the electronic switch.

13. A communication device as recited in claim 9, wherein the antenna system
15 further comprises:
the second knuckle coupled to a negative side of the signal source.

14. A communication device as recited in claim 13, further comprising:
a printed circuit board having a printed circuit board ground, wherein the
20 negative side of the signal source is coupled to the printed circuit board ground and further wherein the second knuckle is coupled to the printed circuit board ground.

15. A communication device as recited in claim 14, wherein the second knuckle is coupled to the printed circuit board ground through a conductive spring clip.

16. A communication device for use within one or more communication systems, the communication device comprising:

a main housing;

5 a movable flip housing moveably coupled to the main housing through a hinge assembly;

the hinge assembly coupled between the main housing and the movable flip housing, the hinge assembly comprising:

a hinge shaft,

10 a first knuckle coupled to one side of the hinge shaft, and

a second knuckle coupled to an opposing side of the hinge shaft; and

an antenna system for transmitting and receiving communication signals

within the one or more communication systems, the antenna system comprising:

the first knuckle coupled to a negative side of a signal source, and

15 a main antenna coupled to a positive side of the signal source.

17. A communication device as recited in claim 16, wherein the antenna system further comprises:

the second knuckle coupled to the negative side of the signal source.

20 18. A communication device as recited in claim 17 further comprising:

a printed circuit board having a printed circuit board ground, wherein the negative side of the signal source is coupled to the printed circuit board ground and further wherein the second knuckle is coupled to the printed circuit board ground.

19. A communication device as recited in claim 18 wherein the second knuckle is coupled to the printed circuit board ground through a conductive spring clip.

20. An antenna system for use within a communication device, the communication device including a signal source, a main housing and a movable flip housing moveably coupled to the main housing through a hinge assembly, the hinge assembly being comprised of a hinge shaft, a first knuckle coupled to one side of the hinge shaft, and a second knuckle coupled to an opposing side of the hinge shaft, the antenna system comprising:
- the first knuckle coupled to a positive side of the signal source.
- 10 21. An antenna system as recited in claim 20, wherein the first knuckle is coupled through a first impedance match to the positive side of the signal source.
22. An antenna system as recited in claim 20, wherein the first knuckle includes an attached conductive antenna pattern.
- 15 23. An antenna system as recited in claim 20 further comprising:
- the second knuckle coupled to a negative side of the signal source.
24. An antenna system as recited in claim 23 wherein the communication device further includes a printed circuit board having a printed circuit board ground,
- 20 wherein the negative side of the signal source is coupled to the printed circuit board ground and further wherein the second knuckle is coupled to the printed circuit board ground.

25. An antenna system as recited in claim 24 wherein the second knuckle is coupled to the printed circuit board ground through a conductive spring clip.
26. An antenna system as recited in claim 23, wherein the second knuckle is coupled through a second impedance match to the negative side of the signal source.
27. An antenna system as recited in claim 23, wherein the second knuckle includes an attached conductive antenna pattern.
- 10 28. An antenna system as recited in claim 20 further comprising:
a main antenna coupled to the positive side of the signal source.
29. An antenna system as recited in claim 28 wherein the main antenna is coupled through a main antenna impedance match to the positive side of the signal source.
- 15 30. An antenna system as recited in claim 28 further comprising an electronic switch, and further wherein the main antenna and the first knuckle are coupled to the positive side of the signal source through the electronic switch.
- 20 31. An antenna system as recited in claim 28 further comprising:
the second knuckle coupled to a negative side of the signal source.

32. An antenna system for a communication device, the communication device including a signal source, a main housing and a movable flip housing moveably coupled to the main housing through a hinge assembly, the hinge assembly being 5 comprised of a hinge shaft, a first knuckle coupled to one side of the hinge shaft, and a second knuckle coupled to an opposing side of the hinge shaft, the antenna system comprising:

the first knuckle coupled to a negative side of the signal source, and
a main antenna coupled to a positive side of the signal source.

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33. An antenna system as recited in claim 32 further comprising:
the second knuckle coupled to the negative side of the signal source.

34. An antenna system as recited in claim 33 wherein the main antenna is used for 15 communication within a first communication system, and wherein the first knuckle and the second knuckle are used for communication within a second communication system.

35. An antenna system as recited in claim 33, wherein the communication device 20 further includes a printed circuit board having a printed circuit board ground, wherein the negative side of the signal source is coupled to the printed circuit board ground, and further wherein the second knuckle is coupled to the printed circuit board ground.

36. An antenna system as recited in claim 35 wherein the second knuckle is coupled to the printed circuit board ground through a conductive spring clip.